

PATENT SPECIFICATION



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230,672

Complete Left: July 7, 1924.

Complete Accepted: March 19, 1925.

PROVISIONAL SPECIFICATION.

Improvements in Dyeing Machines.

I, FRANK DAY, 20, Broad Street, Port Talbot, Glamorgan, British, do hereby declare the nature of this invention to be as follows:—

15 Perforated box working upwards & downwards into a dye bath.

Fitted inside with gutters near top,

centre & bottom for sticks holding material.

Fitted inside truncheons which divide 10 & force material downwards.

Dated this 21st day of May, 1924.

FRANK DAY.

COMPLETE SPECIFICATION.

Improvements in Dyeing Machines.

I, FRANK DAY, 20, Broad Street, Port Talbot, Glamorgan, British, do hereby declare the nature of this invention and in what manner the same is to be performed, to be particularly described and ascertained in and by the following statement:—

20 This invention relates to dyeing apparatus of the kind in which the goods to be dyed are enclosed in a perforated box or receptacle which is reciprocated into and 25 out of the dye vat.

According to the invention I provide an improved box adapted for the treatment of yarn in skeins or hanks and also for dyeing lace, hosiery, etc.

30 The box is perforated on top, bottom, sides, and ends, which allow the dye liquor to enter, and the air to escape, causing it to sink on being lowered into dye-bath.

35 The ends open as doors, one opening upwards, the other downwards, convenient for loading, and unloading materials to be dyed.

40 There are three detachable gutters on each side of the box one in the centre the other two near the top and bottom.

They may be moved to suit the length of yarn to be dyed and serve to secure the sticks for supporting the skeins of

yarn and keeping them straight and free 45 from entanglement.

When the apparatus is in use, liquor rushes into the box while it is being lowered and raises the hanks so that they are only lightly held by the upper sticks, 50 liquor then rushes in at the top of the box and acts on the upper parts of the hanks which are thus evenly dyed without the necessity of revolving the supporting sticks.

When the apparatus is employed for dyeing lace, hosiery, &c., I make use of truncheons which are for the purpose of separating and pressing the goods when they move upwardly in the box due to the upward rush of liquor in the box as it is 60 lowered into the vat.

The truncheons are detachably arranged on the top and inside of box, which are made fast by screws or nuts on 65 the outside, as shown three are in the centre, two at each end between centre and ends.

The bottom of the box is flat and assists in causing the upward movement of the 70 material to be dyed when the box is descending, into the dye-liquor.

The machine has no perforations one third from top (sides and ends) causing the dye-liquor to rush vigorously in at 75

[Price 1/-]

the top at the same time the yarn is lifted off the dye-sticks causing it to be dyed evenly. Acting the same with hosiery, lace, &c., the vigorous rush causing them to separate and sink quickly.

The length of rope from crank to machine is so arranged to allow the box at each turn of the crank, to stay for a few seconds in the dye-bath before being withdrawn.

The invention will now be described with reference to the accompanying drawing in which:—

Fig. 1 shows the box constructed according to the invention, the means for raising and lowering it and also a truncheon and a gutter detached.

Fig. 2 showing the apparatus together with the dye vat.

The box is lowered into a dye-bath in a vat D, and raised out of the liquor by a crank 4 as in Fig. 2 on a shaft *f* provided with fast and loose pulleys 2, 3,

Fig. 1. 5 is a ring working loose on crank 4 and is fastened to rope 6 or chain which is guided on to 8 a loose wheel (on shafting 7) which is fixed exactly over the centre of dye-bath and guides box into the dye-liquor. 9 is hook to fasten into loop 21 to lift box.

The truncheons 10 to 16 inside and on the top of machine are pear shaped and go narrow towards the top with a screw thread at the end.

They are mounted from the inside, the end going through a hole (of suitable size) and fastened on the outside on the top with a nut which holds them tight and in position.

Door *a* at the end of machine opens upwards, door *b* opens downwards, they are on hinges and are made to shut and to be fastened by catches D.

Three gutters 18, 19, 20, are on each side to hold securely dye-sticks containing yarn, they are detachable and may be arranged to suit the length of yarn to be dyed.

17 is a strengthening band provided

with a loop 21 for engagement with the hook 9 on the end of the lifting rope 6.

22, Fig. 1 shows one of the gutters and 23 a truncheon detached. Fig. 2 shows the machine B ready to be lowered into D the dye-box which contains the dye-liquor *f* B² shows the part where the box B is not perforated; *f*, a shafting driving the crank 4 round, *f* B¹ shafting for the loose pulley wheel 8 which guides the rope 6 and ensures that the box shall reciprocate accurately into the dye-vat.

Having now particularly described and ascertained the nature of my said invention and in what manner the same is to be performed, I declare that what I claim is:—

1. In dyeing apparatus of this kind in which a perforated box or receptacle is reciprocated into and out of a dye vat, providing gutters along the inner sides of the receptacle to receive sticks between which hanks of yarn to be dyed are supported, and removable truncheons extending through the top of the receptacle for the purpose described.

2. In dyeing apparatus as claimed in Claim 1, the provision of doors at each end of the receptacle, one door being hinged to the bottom and the other to the top of the receptacle.

3. In dyeing apparatus as claimed in Claim 1 or 2, means for reciprocating the box into and out of the vat comprising a rope or chain guided over a pulley and reciprocated by a crank.

4. Dyeing apparatus as claimed in Claim 1 in which the gutters are adjustable for hanks of different reels or lengths.

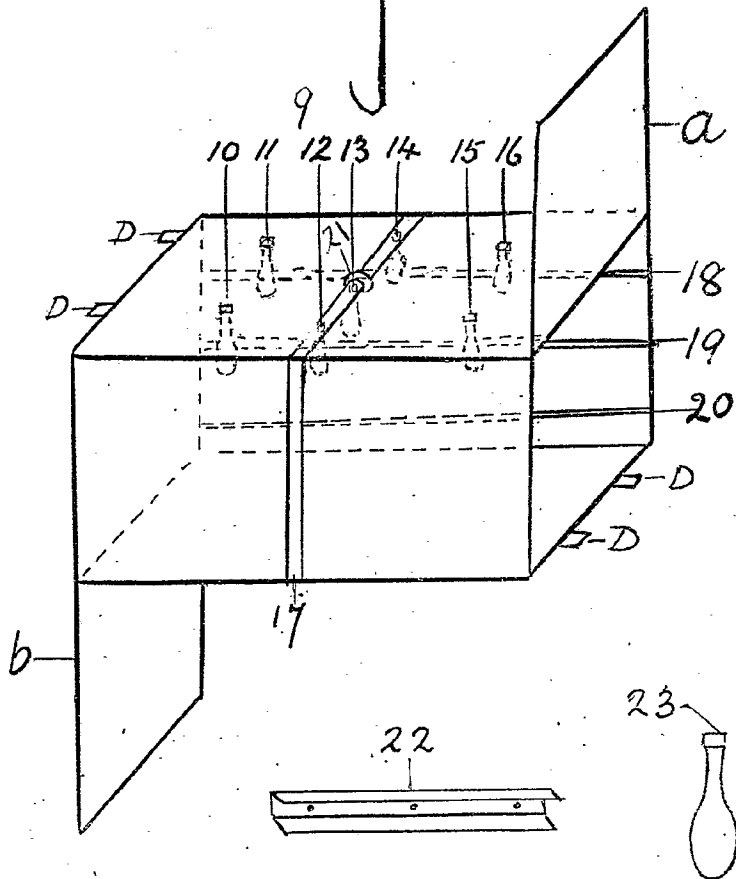
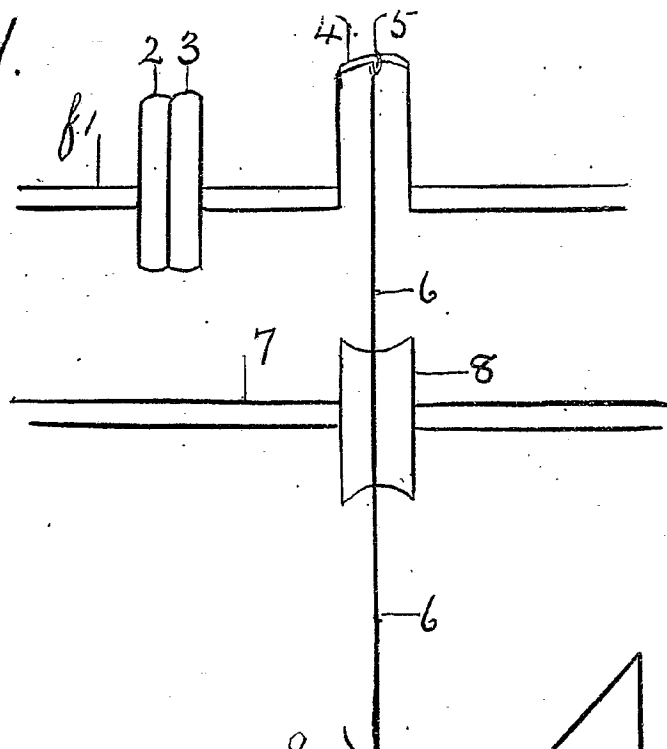
5. Apparatus as claimed in Claim 1 in which the upper third of the sides and ends is left unperforated for the purpose described.

6. A machine as claimed above substantially as hereinbefore described with reference to the accompanying drawing.

Dated the 7th day of July, 1924.

FRANK DAY.

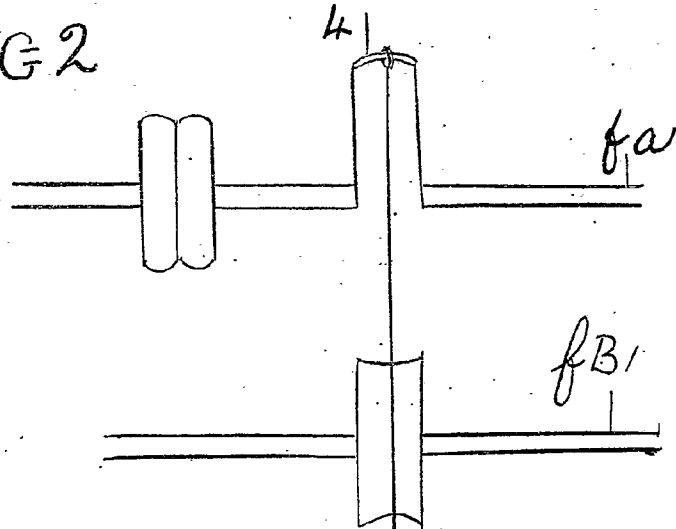
FIG. 1.



[This Drawing is a reproduction of the Original on a reduced scale]

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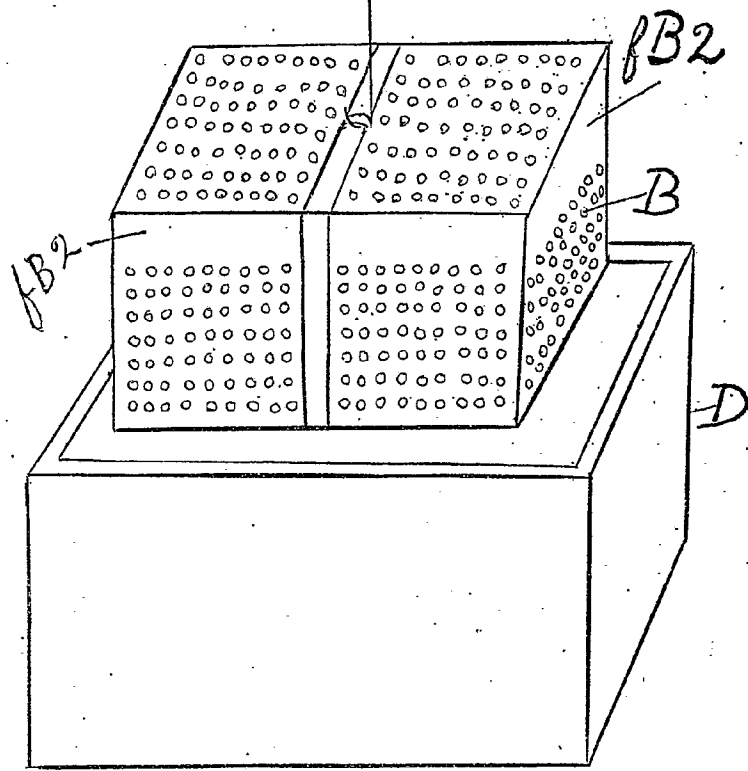
FIG 2



a

18
19
20

2



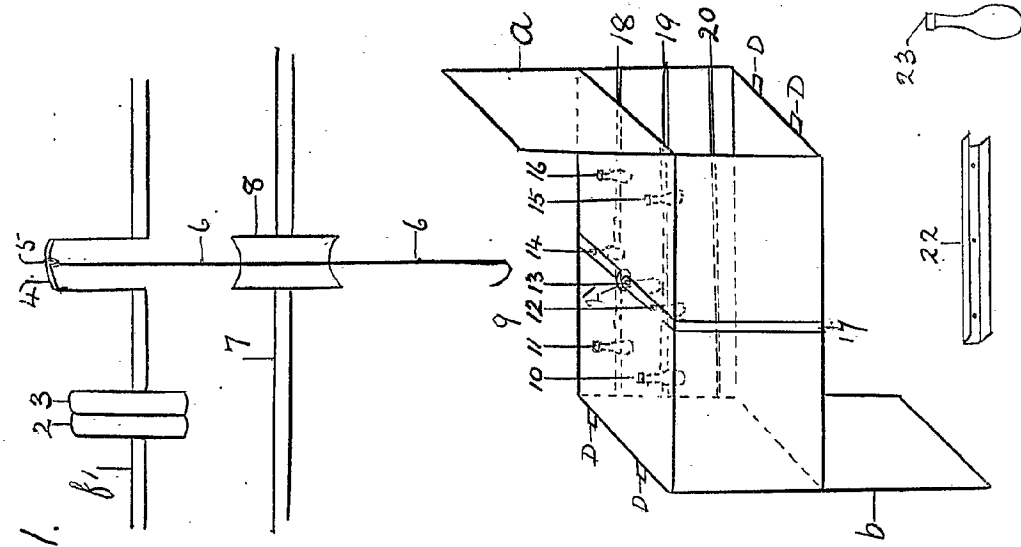


FIG. 1.

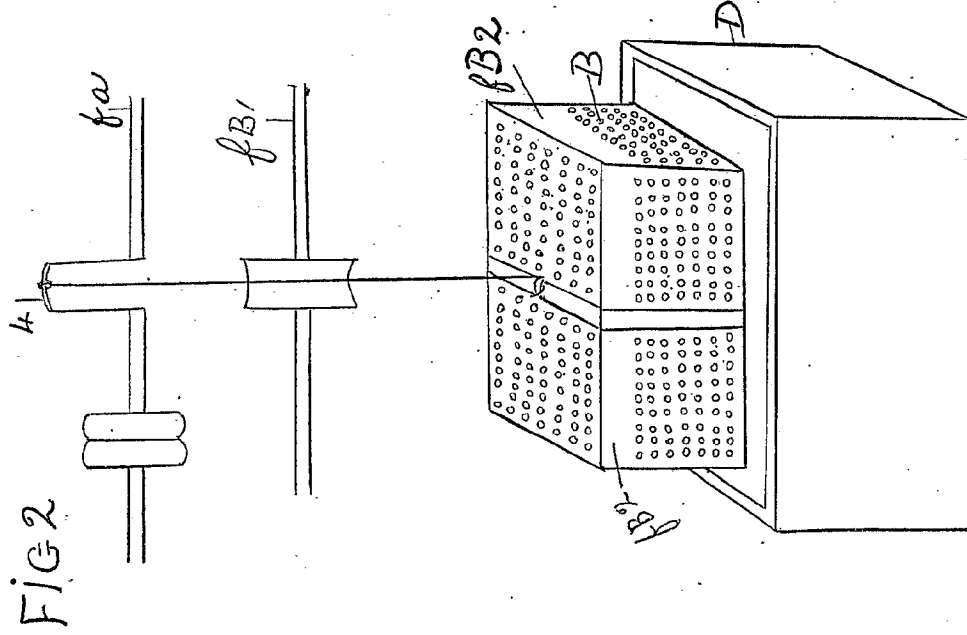


FIG. 2.